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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/737,281	12/16/2003	Gaohong Wei	VRT0112US	6590
60429 7590 04/15/2009 CAMPBELL STEPHENSON LLP 11401 CENTURY OAKS TERRACE BLDG. H, SUITE 250 AUSTIN, TX 78758			EXAMINER PHAM, MICHAEL	
			ART UNIT 2167	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/737,281	<b>Applicant(s)</b> WEI ET AL.	
	<b>Examiner</b> MICHAEL PHAM	<b>Art Unit</b> 2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**Detailed Action**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/5/09 has been entered.

***Status of claims***

2. Claims 1-32 are pending.
3. Claims 1-32 have been examined.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1, 13, 23, and 28 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In particular the claims recite "an actual structure of said database is unknown when said determining is performed", this is not disclosed in 0033.

***Claim Rejections - 35 USC § 101***

6. Prior 101 rejection to claim 13 is withdrawn.
7. Regarding claims 23-27, claim 23 recites a “machine-readable storage medium”. In the absence of any modifying disclosure of this limitation in the specification, the examiner interprets the terms 'machine-readable storage medium' as excluding printed paper, transmission media, signals, or any form of energy, such that the claim clearly falls within a statutory class of invention as required under the terms of 35 U.S.C. 101.
8. Regarding claims 28-32 these claims recite a “computer-readable storage medium”. In the absence of any modifying disclosure of this limitation in the specification, the examiner interprets the terms 'computer-readable storage medium' as excluding printed paper, transmission media, signals, or any form of energy, such that the claim clearly falls within a statutory class of invention as required under the terms of 35 U.S.C. 101.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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10. Claims 1-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 7133884 by Murley et. al. (hereafter Murley) further in view of U.S. Patent Application Publication 20050021487 by Verma et. al. (hereafter Verma).

**Claim 1:**

Murley discloses the following claimed limitations:

“determining a speculative structure of said database,” [col. 7 lines 19-22, current snapshot. Accordingly, determining a speculative structure (current snapshot) of said database (target database) is disclosed. ]

“wherein said database comprises the plurality of components and said database is stored on a storage volume;” [col. 2 lines 52-53 discloses identifies one or more source database objects in a database. Col. 4 line 2 discloses targeted database objects as they exist on the storage device or system. Col. 1 lines 15-18 discloses a database is, fundamentally, a computerized record keeping system in which large amounts of information maybe stored in a structured manner for ease of subsequent retrieval and processing. Col. 1 lines 20-22, discloses a dbms, in turn provides four primary functions: management of physical storage. Accordingly, wherein said database (col. 2 lines 52-53, a database) comprises the plurality of components (col. 2 lines 52-53, database objects in a database) and said database is stored (col. 1 lines 15-18, stored) on a storage volume (col. 1 lines 20-22, physical storage) is suggested.]

“and an actual structure of said database is unknown when said determining is performed;” [col. 7 lines 19-22, a consistent copy is created by starting with a current snapshot of

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the target database, and selectively removing updates back to the user-specified point in time.

Accordingly, an actual structure of said database (consistent copy) is unknown when said determining is performed (updates)]

“identifying each of said plurality of components using said speculative structure; and”  
[col. 7 lines 19-22 selectively removing updates back to the user-specified point in time.

Accordingly, identifying (selectively removing) each of said plurality of components (updates) using said speculative structure (current snapshot).]

“Selecting a component of said plurality of components;” [col. 2 lines 54-55, discloses obtains a copy of identified one or more source database objects. Accordingly, selecting (obtains a copy of identified) a component of said plurality of components (one or more source database objects) is disclosed.]

“generating a point-in-time image of said component” [col. 4 lines 1-2, generate a point-in-time image of the targeted database objects as they exist on the storage device.]

Murley does not explicitly disclose

“Selecting a data management resource of a plurality of data management resources using an attribute of said component; and”

“Generating a point-n-time image of said component using said data management resource” alone.

On the other hand, Verma, discloses

“selecting a data management resource of a plurality of data management resources using an attribute of said component” [Abstract, each resource manager (data management resources) independently maintains metadata (attribute) associated with a collection of files (component) that are contained within the scope of a resource manager, such as the files within a subdirectory corresponding to the resource manager. [0036], when a file is accessed in a transacted file system, the file system needs to know exactly which resource manager is responsible for maintaining the transactional metadata for that file. Further disclosing, files may be associated in other ways, such as by having the same file extension, having timestamps within a common time frame, by sizes, and may even have tags stored within that identifies a resource manager through some other means. 0009, users can select properties on a per-resource manager basis such as the size of the log file and/or the type of logging to be performed, to obtain different levels of performance, reliability, feature availability, and manageability within a single volume. Accordingly, selecting a data management resource (0036, which resource manager) of a plurality of data management resources (abstract, each resource manager) using attribute of said component (0009, users can select properties on a per-resource manager basis, such as the size of the log file) is suggested.].

“Generating a point-n-time image of said component using said data management resource” [[0035], The resource manager typically provides transactional services and functionality, e.g. exposed through APIs. Further disclosing, 0035, the resource manager is thus the unit of management for various resources that do not exist in non-transacted file systems as

well as for some resources (e.g. log files) that do. [0011], to facilitate use of a resource manager, application programming interfaces may be provided, including functions to create, start, and shut down a resource manager. Other functions may be defined such as to back up and restore files associated with a resource manager, and employ point-in-time recovery of a particular state in time of a resource manager. Accordingly, generating a point-in-time image (0011, employ point-in-time recover of a particular state in time of a resource manager) of said component (0011, back up and restore files associated with a resource manager) using said data management resource (0011, resource manager) is suggested. ]

Murley, Verma, and Applicant's invention all are directed to recovery systems using point-in-time images of databases. Accordingly, Murley and Verma are within the same field of endeavor. It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have applied the disclosure resource managers of Murley above, to the disclosure of Verma for the purpose of providing different properties to match different needs of various users, databases, and other entities.

**Claim 2:**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“performing one or more operations to determine if said speculative structure of said database is equivalent to an actual structure of said database” [col. 7 lines 19-22, a consistent copy is created by starting with a current snapshot of the target database (or portions thereof) and selectively removing updates back to the user-specified point-in-time.]



**Claim 3:**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“Selecting said component of said plurality of components to include within a point-in-time images of said database” [col. 2 lines 60-64, creates a snapshot of the one or more source database objects at a time after the point-in-time and in a manner that does not substantially block access to the source database objects in the database, and makes the snapshot consistent as of the point-in-time.]

**Claim 4:**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“Selecting at least one of a database directory, a table space container, and a redo log directory.” [col. 4 lines 53-58, if the log entry has not been applied, the update is externalized to the image copy. If the log entry has been applied, the current log entry is skipped and the next log entry is evaluated.]

**Claim 5:**

The combination of Murley and Verma discloses in Verma the following claimed limitations:

“Selecting said data management resource using said attribute of said component and a user-defined policy.” [0009, users can select properties (user-defined policy) on a per-resource manager basis, such as the size of the log file (attribute of said component).]

**Claim 6:**

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The combination of Murley and Verma discloses in Verma the following claimed limitations:

“Selecting said data management resource using at least one of a size attribute, a type attribute, a structure attribute, and a location attribute. “[0009, users can select properties on a per-resource manager basis, such as the size of the log file.]

**Claim 7:**

The combination of Murley and Verma discloses in Verma the following claimed limitations:

“Defining a component size range; and” [0009, users can select properties on a per-resource manager basis, such as the size of the log file]

“Selecting said data management resource in response to a determination that said size attribute is within said component size range.” [0009, users can select properties on a per-resource manager basis, such as the size of the log file]

**Claim 8:**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“Selecting a point-in-time image creation process” [0011, point-in-time recovery]

**Claim 9:**

The combination of Murley and Verma discloses in Verma the following claimed limitations:

“wherein said point-in-time image creation process comprises at least one of: a file-level point-in-time image creation process, a directory-level point-in-time image creation process, a file system-level point-in-time image creation process, a storage device-level point-in-time image creation process, a volume-level point-in-time image creation process, and a volume group-level point-in-time image creation process” [0011, back up and restore the files].

**Claim 10:**

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The combination of Murley and Verma discloses in Murley discloses the following claimed limitations:

“Selecting at least one of: a snapshot creation process, a storage checkpoint creation process, and a file copy command, and a backup utility process” [col. 2 lines 60, creates a snapshot]

**Claim 11:**

The combination of Murley and Verma discloses in Murley discloses the following claimed limitations:

“Restoring said database using said point-in-time image of said component.” [col. 2 lines 44-51, recover database objects]

**Claim 12:**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“Said database is initially stored within a first storage region” [col. 5 line 13, original or source database]

“Said restoring comprises,

Restoring said database to a second storage region”[col. 5 lines 17-20, can both generate a copy of a database that is consistent at a specified arbitrary time, or it can recover and replace a database with a consistent point-in-time copy of itself]

**Claim 13:**

Murley discloses the following claimed limitations:

“means for determining a speculative structure of said database;” [col. 7 lines 19-22, current snapshot. Accordingly, determining a speculative structure (current snapshot) of said database (target database) is disclosed.]

“, wherein said database comprises the plurality of components;” [col. 2 lines 52-53, discloses identifies one or more source database objects in a database. Col. 4 line 2 discloses targeted database objects as they exist on the storage device or system. Col. 1 lines 15-18 discloses a database is, fundamentally, a computerized record keeping system in which large amounts of information maybe stored in a structured manner for ease of subsequent retrieval and processing. Col. 1 lines 20-22, discloses a dbms, in turn provides four primary functions: management of physical storage. Accordingly, wherein said database (col. 2 lines 52-53, a database) comprises the plurality of components (col. 2 lines 52-53, database objects in a database) is suggested.]

“and an actual structure of said database is unknown when said determining is performed;” [col. 7 lines 19-22, a consistent copy is created by starting with a current snapshot of the target database, and selectively removing updates back to the user-specified point in time. Accordingly, an actual structure of said database (consistent copy) is unknown when said determining is performed (updates)]

“means for identifying each of said plurality of components using said speculative structure; and” [col. 7 lines 19-22 selectively removing updates back to the user-specified point in time. Accordingly, identifying (selectively removing) each of said plurality of components (updates) using said speculative structure (current snapshot).]

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"and hardware storage means for storing said database"[col. 1 lines 15-18 and col. 1 lines 20-22]

However, Murley does not explicitly disclose

“means for associating a data management resource with a component of said plurality of components; and”

“means for generating a point-in-time image of said component using said data management resource”

On the other hand, Verma, discloses

“Means for associating a data management resource with a component of said plurality of components; and” [Abstract, each resource manager (data management resources) independently maintains metadata associated (associated) with a collection of files (component) that are contained within the scope of a resource manager, such as the files within a subdirectory corresponding to the resource manager. [0036], when a file is accessed in a transacted file system, the file system needs to know exactly which resource manager is responsible for maintaining the transactional metadata for that file. Further disclosing, files may be associated in other ways, such as by having the same file extension, having timestamps within a common time frame, by sizes, and may even have tags stored within that identifies a resource manager through some other means. 0009, users can select properties on a per-resource manager basis such as the size of the log file and/or the type of logging to be performed, to obtain different levels of

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performance, reliability, feature availability, and manageability within a single volume.

Accordingly, means for associating a data management resource with a component of said plurality of components (0009, users can select properties on a per-resource manager basis, such as the size of the log file) is suggested.].

“means for generating a point-n-time image of said component using said data management resource” [[0035], The resource manager typically provides transactional services and functionality, e.g. exposed through APIs. Further disclosing, 0035, the resource manager is thus the unit of management for various resources that do not exist in non-transacted file systems as well as for some resources (e.g. log files) that do. [0011], to facilitate use of a resource manager, application programming interfaces may be provided, including functions to create, start, and shut down a resource manager. Other functions may be defined such as to back up and restore files associated with a resource manager, and employ point-in-time recovery of a particular state in time of a resource manager. Accordingly, means for generating a point-in-time image (0011, employ point-in-time recover of a particular state in time of a resource manager) of said component (0011, back up and restore files associated with a resource manager) using said data management resource (0011, resource manager) is suggested. ]

Murley, Verma, and Applicant's invention all are directed to recovery systems using point-in-time images of databases. Accordingly, Murley and Verma are within the same field of endeavor. It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have applied the disclosure resource managers of Murley above, to the

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disclosure of Verma for the purpose of providing different properties to match different needs of various users, databases, and other entities.

**Claim 14:**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“performing one or more operations to determine if said speculative structure of said database is equivalent to an actual structure of said database” [col. 7 lines 19-22, a consistent copy is created by starting with a current snapshot of the target database (or portions thereof) and selectively removing updates back to the user-specified point-in-time.]

**Claim 15:**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“Means for associating a point-in-time image creation process with said component of said plurality of components” [figure 1, element 110, snapshot designated objects].

**Claim 16:**

The combination of Murley and Verma discloses in Verma the following claimed limitations:

“Means for associating said data management resource with said component of said plurality of components using an attribute of said component” [Abstract, each resource manager (data management resources) independently maintains metadata (attribute of said component)

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associated (associated) with a collection of files (component) that are contained within the scope of a resource manager, such as the files within a subdirectory corresponding to the resource manager.]

**Claim 17:**

The combination of Murley and Verma discloses in Verma the following claimed limitations:

“Means for associating said data management resource with said component of said plurality of components using a user-defined policy” [0009, users can select properties (user-defined policy) on a per-resource manager (data management resource) basis, such as the size of (attribute of) the log file (said components of said plurality of components).]

**Claim 18:**

The combination of Murley and Verma discloses in Verma the following claimed limitations:

“Means for associating said data management resource with said component of said plurality of components using at least one of a size attribute, a type attribute, a structure attribute, and a location attribute” [0009, users can select properties on a per-resource manager basis, such as the size of the log file]

**Claim 19:**

The combination of Murley and Verma discloses in Verma the following claimed limitations:

“Means for defining a component size range; and” [0009, users can select properties on a per-resource manager basis, such as the size of the log file]



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“Means for associating said data management resource with said component in response to a determination that said size attribute is within said component size range” [0009, users can select properties on a per-resource manager basis, such as the size of the log file]

**Claim 20:**

The combination of Murley and Verma discloses in Verma the following claimed limitations:

“Means for generating a point-in-time image of said database” [col. 2 lines 46-48].

**Claim 21:**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“Means for restoring said database using said point-in-time image of said component”  
[col. 2 lines 44-51, recover database objects]

**Claim 22:**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“Said database is initially stored within a first storage region, and” [col. 5 line 13, original or source database]

“Said means for restoring comprises,

Means for restoring said database to a second storage region” [col. 5 lines 17-20, can both generate a copy of a database that is consistent at a specified arbitrary time, or it can recover and replace a database with a consistent point-in-time copy of itself].

**Claim 23:**

Murley discloses the following claimed limitations:

“A machine-readable storage medium having a plurality of instructions executable by a machine embodied therein, wherein said plurality of instructions when executed cause said machine to:

determining a speculative structure of said database;” [col. 7 lines 19-22, current snapshot. Accordingly, determining a speculative structure (current snapshot) of said database (target database) is disclosed.]

“, wherein said database comprises the plurality of components,” [col. 2 lines 52-53 discloses identifies one or more source database objects in a database. Col. 4 line 2 discloses targeted database objects as they exist on the storage device or system. Col. 1 lines 15-18 discloses a database is, fundamentally, a computerized record keeping system in which large amounts of information maybe stored in a structured manner for ease of subsequent retrieval and processing. Col. 1 lines 20-22, discloses a dbms, in turn provides four primary functions: management of physical storage. Accordingly, wherein said database (col. 2 lines 52-53, a database) comprises the plurality of components (col. 2 lines 52-53, database objects in a database) and said database is stored (col. 1 lines 15-18, stored) on a storage volume (col. 1 lines 20-22, physical storage) is suggested.]

“an actual structure of said database is unknown when said determining is performed;” [col. 7 lines 19-22, a consistent copy is created by starting with a current snapshot of the target database, and selectively removing updates back to the user-specified point in time. Accordingly, an actual structure of said database (consistent copy) is unknown when said determining is performed (updates)]

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“and said database is stored on a storage volume;” [ Accordingly, and said database is stored (col. 1 lines 15-18, stored) on a storage volume (col. 1 lines 20-22, physical storage)]

“identifying each of said plurality of components using said speculative structure; and” [col. 7 lines 19-22 selectively removing updates back to the user-specified point in time.

Accordingly, identifying (selectively removing) each of said plurality of components (updates) using said speculative structure (current snapshot).]

“Select a component of said plurality of components;” [col. 2 lines 54-55, discloses obtains a copy of identified one or more source database objects. Accordingly, selecting (obtains a copy of identified) a component of said plurality of components (one or more source database objects) is suggested.]

“generating a point-in-time image of said component” [col. 4 lines 1-2, generate a point-in-time image of the targeted database objects as they exist on the storage device.]

Murley does not explicitly disclose

“Select a data management resource of a plurality of data management resources using an attribute of said component; and”

“Generate a point-n-time image of said component using said data management resource” alone.

On the other hand, Verma, discloses

“select a data management resource of a plurality of data management resources using an attribute of said component” [Abstract, each resource manager (data management resources) independently maintains metadata (attribute) associated with a collection of files (component) that are contained within the scope of a resource manager, such as the files within a subdirectory corresponding to the resource manager. [0036], when a file is accessed in a transacted file system, the file system needs to know exactly which resource manager is responsible for maintaining the transactional metadata for that file. Further disclosing, files may be associated in other ways, such as by having the same file extension, having timestamps within a common time frame, by sizes, and may even have tags stored within that identifies a resource manager through some other means. 0009, users can select properties on a per-resource manager basis such as the size of the log file and/or the type of logging to be performed, to obtain different levels of performance, reliability, feature availability, and manageability within a single volume. Accordingly, selecting a data management resource (0036, which resource manager) of a plurality of data management resources (abstract, each resource manager) using attribute of said component (0009, users can select properties on a per-resource manager basis, such as the size of the log file) is suggested.].

“Generate a point-n-time image of said component using said data management resource” [[0035], The resource manager typically provides transactional services and functionality, e.g. exposed through APIs. Further disclosing, 0035, the resource manager is thus the unit of management for various resources that do not exist in non-transacted file systems as well as for

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some resources (e.g. log files) that do. [0011], to facilitate use of a resource manager, application programming interfaces may be provided, including functions to create, start, and shut down a resource manager. Other functions may be defined such as to back up and restore files associated with a resource manager, and employ point-in-time recovery of a particular state in time of a resource manager. Accordingly, generating a point-in-time image (0011, employ point-in-time recover of a particular state in time of a resource manager) of said component (0011, back up and restore files associated with a resource manager) using said data management resource (0011, resource manager) is suggested. ]

Murley, Verma, and Applicant's invention all are directed to recovery systems using point-in-time images of databases. Accordingly, Murley and Verma are within the same field of endeavor. It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have applied the disclosure resource managers of Murley above, to the disclosure of Verma for the purpose of providing different properties to match different needs of various users, databases, and other entities.

**Claim 24:**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“performing one or more operations to determine if said speculative structure of said database is equivalent to an actual structure of said database” [col. 7 lines 19-22, a consistent

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copy is created by starting with a current snapshot of the target database (or portions thereof) and selectively removing updates back to the user-specified point-in-time.]

**Claim 25:**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“Selecting said component of said plurality of components to include within a point-in-time images of said database” [col. 2 lines 60-64, creates a snapshot of the one or more source database objects at a time after the point-in-time and in a manner that does not substantially block access to the source database objects in the database, and makes the snapshot consistent as of the point-in-time.]

**Claim 26:**

The combination of Murley and Verma discloses in Verma the following claimed limitations:

“Selecting said data management resource using said attribute of said component and a user-defined policy.” [0009, users can select properties (user-defined policy) on a per-resource manager basis, such as the size of the log file (attribute of said component).]

**Claim 27:**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“Selecting a point-in-time image creation process” [0011, point-in-time recovery]

**Claim 28:**

Murley discloses the following claimed limitations:

“A first computer-readable storage medium to store a database; and” [original or source database]

“A point-in-time image utility configured to,  
Access said first storage element;” [col. 2 lines 51-52, identifies one or more source database objects]

“determining a speculative structure of said database;” [col. 7 lines 19-22, current snapshot. Accordingly, determining a speculative structure (current snapshot) of said database (target database) is disclosed]

“, wherein said database comprises the plurality of components;” [col. 2 lines 52-53 discloses identifies one or more source database objects in a database. Col. 4 line 2 discloses targeted database objects as they exist on the storage device or system. Col. 1 lines 15-18 discloses a database is, fundamentally, a computerized record keeping system in which large amounts of information maybe stored in a structured manner for ease of subsequent retrieval and processing. Col. 1 lines 20-22, discloses a dbms, in turn provides four primary functions: management of physical storage. Accordingly, wherein said database (col. 2 lines 52-53, a database) comprises the plurality of components (col. 2 lines 52-53, database objects in a database) is suggested.]

“an actual structure of said database is unknown when said determining is performed;” [col. 7 lines 19-22, a consistent copy is created by starting with a current snapshot of the target database, and selectively removing updates back to the user-

specified point in time. Accordingly, an actual structure of said database (a consistent copy) is unknown when said determining is performed (updates).]

“identify each of said plurality of components using said structure; and” [col. 7 lines 19-22 selectively removing updates back to the user-specified point in time.

Accordingly, identifying (selectively removing) each of said plurality of components (updates) using said speculative structure (current snapshot)]

“Select a component of said plurality of components;” [col. 2 lines 54-55, discloses obtains a copy of identified one or more source database objects. Accordingly, selecting (obtains a copy of identified) a component of said plurality of components (one or more source database objects) is suggested.]

“generating a point-in-time image of said component” [col. 4 lines 1-2, generate a point-in-time image of the targeted database objects as they exist on the storage device.]

Murley does not explicitly disclose

“Select a data management resource of a plurality of data management resources using an attribute of said component; and”

“Generate a point-n-time image of said component using said data management resource” alone.

On the other hand, Verma, discloses



“select a data management resource of a plurality of data management resources using an attribute of said component” [Abstract, each resource manager (data management resources) independently maintains metadata (attribute) associated with a collection of files (component) that are contained within the scope of a resource manager, such as the files within a subdirectory corresponding to the resource manager. [0036], when a file is accessed in a transacted file system, the file system needs to know exactly which resource manager is responsible for maintaining the transactional metadata for that file. Further disclosing, files may be associated in other ways, such as by having the same file extension, having timestamps within a common time frame, by sizes, and may even have tags stored within that identifies a resource manager through some other means. 0009, users can select properties on a per-resource manager basis such as the size of the log file and/or the type of logging to be performed, to obtain different levels of performance, reliability, feature availability, and manageability within a single volume. Accordingly, selecting a data management resource (0036, which resource manager) of a plurality of data management resources (abstract, each resource manager) using attribute of said component (0009, users can select properties on a per-resource manager basis, such as the size of the log file) is suggested.].

“Generate a point-n-time image of said component using said data management resource” [[0035], The resource manager typically provides transactional services and functionality, e.g. exposed through APIs. Further disclosing, 0035, the resource manager is thus the unit of management for various resources that do not exist in non-transacted file systems as well as for some resources (e.g. log files) that do. [0011], to facilitate use of a resource manager,

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application programming interfaces may be provided, including functions to create, start, and shut down a resource manager. Other functions may be defined such as to back up and restore files associated with a resource manager, and employ point-in-time recovery of a particular state in time of a resource manager. Accordingly, generating a point-in-time image (0011, employ point-in-time recover of a particular state in time of a resource manager) of said component (0011, back up and restore files associated with a resource manager) using said data management resource (0011, resource manager) is suggested. ]

Murley, Verma, and Applicant's invention all are directed to recovery systems using point-in-time images of databases. Accordingly, Murley and Verma are within the same field of endeavor. It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to have applied the disclosure resource managers of Murley above, to the disclosure of Verma for the purpose of providing different properties to match different needs of various users, databases, and other entities.

**Claim 29:**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“A memory to execute said point-in-time image utility; and” [col. 7 lines 50-55, memory]

“A processor coupled to said memory to execute said point-in-time image utility.” [col. 7 lines 55-58, processor]

**Claim 30:**

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The combination of Murley and Verma discloses in Murley the following claimed limitations:

“wherein said first node comprises said first storage element and said point-in-time image utility.” [col. 5 line 13, original or source database]

**Claim 31:**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“a second node communicatively coupled to said first node, wherein said second node comprises a second storage element to store said point-in-time image of said component.” [col. 5 lines 17-20, can both generate a copy of a database that is consistent at a specified arbitrary time, or it can recover and replace a database with a consistent point-in-time copy of itself]

**Claim 32:**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“perform one or more operations to determine if said speculative structure of said database is equivalent to an actual structure of said database” [col. 7 lines 19-22, a consistent copy is created by starting with a current snapshot of the target database (or portions thereof) and selectively removing updates back to the user-specified point-in-time.]

**Claim 33 :**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“selecting one of a plurality of pre-defined database structures.”[ col. 7 lines 19-22, current snapshot.]

**Claim 34 :**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“means for selecting one of a plurality of predefined database structures.”[ col. 7 lines 19-22, current snapshot.]

**Claim 35 :**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“select one of a plurality of predefined database structures”[ col. 7 lines 19-22, current snapshot.]

**Claim 36 :**

The combination of Murley and Verma discloses in Murley the following claimed limitations:

“select one of a plurality of pre-determined database structures”[ col. 7 lines 19-22, current snapshot.]

***Response to Arguments***

11. Applicant's arguments filed 2/5/09 have been fully considered but they are not persuasive.

Applicant's assert the following (lettered):

A. That Murley does not disclose “an actual structure of said database is unknown when said determining is performed”. The reason being that Murley disclosed “a consistent copy is created by starting with a current snapshot of the target database objects and selectively removing updates from it back to a user specified arbitrary point-in-time.”, stating that in order to create Murley's consistent copy, a current snapshot is required. That Murley's current snapshot is created by generating a copy of the state of one or more source database objects at a particular point-in-time, citing col. 2 lines 45-57. And concluding that the structure of the source database objects is necessarily known for the generation of such a current snapshot.

In response, the examiner respectfully disagrees that the combination does not disclose “an actual structure of said database is unknown when said determining is performed”. As indicated above in the rejection, Murley discloses in col. 7 lines 19-22, a consistent copy is created by starting with a current snapshot of the target database, and selectively removing updates back to the user-specified point in time. Murley therefore further discloses the claimed limitation “an actual structure of said database” (consistent copy) “is unknown when said determining is performed” (update). The consistent copy is not created and hence unknown until all the updates are done.

B. Verma does not disclose “an actual structure of said database is unknown when said determining is performed”. Applicant's assert that the resource managers must be aware of the structure of the database in order to maintain such metadata.

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In response, the examiner respectfully disagrees that the combination of the cited references do not disclose the above limitation. Please see above response to part A, as it was stated in the rejection that Murley discloses this.

***Conclusion***

12. The prior art made of record listed on PTO-892 and not relied, if any, upon is considered pertinent to applicant's disclosure.

***Contact Information***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael D. Pham whose telephone number is (571)272-3924. The examiner can normally be reached on Monday - Friday 9am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Cottingham can be reached on 571-272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/M. P./  
Examiner, Art Unit 2167

/John R. Cottingham/  
Supervisory Patent Examiner, Art Unit  
2167

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